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genian region; it was repeatedly compared with the nebula by several persons, and we believe therefore that it was quite accurate. It is not now an exact representation of the nebula as it exists, consequently there seems to be strong evidence of change.

The observations were continued by Mr. Hunter from 1860 to 1864, and by me to the present time. A drawing was made by Mr. Hunter while he was assistant, and it has been verified by me in almost all its details, and extended considerably. In one place, where there is a disagreement between Mr. Hunter's drawing and mine, Mr. Hunter had previously been under the impression that some change was going on.

The nebula, when nearly on the meridian, was examined with the 6-foot instrument and with the 3-foot instrument, before and after that time. The appearance of the nebula differs from night to night, as the faint details come out more or less perfectly in the different states of the atmosphere; but the drawing represents it as seen on the best nights.

The present drawing contains many new stars, some laid down by the micrometer, and others by eye estimation. The nebula has been traced to a distance of fully 40' North, and about the same distance South of the trapezium, on the following side to a distance of about 30', and to a much greater distance on the preceding side.

As to resolvability, the brighter parts contain a great number of minute stars, generally of a reddish colour. With the spectroscope three bright lines were seen, but there was no certain evidence of a continuous spectrum. The results arrived at by means of the spectroscope do not, however, appear to be at variance with our observations on resolvability, as even if the whole nebula were to consist of minute stars, the continuous spectrum produced by them would still be extremely faint.

XII. "On the apparent relation of the Nerves to the Muscular Structures in the Aquatic Larva of *Tipula crystallina* of De Geer." By RICHARD L. MADDOX, M.D. Communicated by Dr. SHARPEY. Received June 18, 1867.

(Abstract.)

To avoid as much as possible errors that might be attributable to a faulty mode of examination, the figures and photographs have all been made from the larvæ alive, and in their natural medium, except two instances in the drawings and one in the photographs. After alluding to the effects of various reagents which were generally found useless in "differentiating" the fine nervous structures, and the ordinary mode of branching in the nerves from the ganglionic chain, two particular methods of termination are selected as illustrative of the relation between the muscular and nervous tissues. One, termed the "flabelliform,"

where the nerve on approaching the muscular sheath expands into a fan shape, and with its fine granular and nucleated contents embraces the muscle in form of the letter A, without any evidence of the granular matter and sarcoous elements being in absolute contact; the other, called the "stapiform" or stirrup-shaped. The latter, in its early stage, is knobbed in appearance. This, the early stage, is shown gradually passing into the cellular, looped, or stirrup form, embracing the fine muscular structure somewhat obliquely, or passing entirely round it, and projecting beyond its edge. In this form also there was no evidence of any union of the granular contents with the sarcoous elements, though firm union existed between their sheaths or outer membranes. Fine networks, ending apparently in a granular irregular spot with a pale centre and uniting, are pointed out. The relation and union of short muscles passing between others, and nerve-fibres lying alongside them, with flabelliform expansions, are remarked on, and shown in the figures and photographs.

Muscles undergoing degeneration, or the metamorphic change, are noticed, and in no instance could a nerve-fibre be seen attached to them, or a fibre that could with certainty be traced to any nerve or ganglion. No change was observed of a definite character, as regards the mode of union, under muscular contraction. Some of the finest muscular fibres are passed by for special reasons, as constant motion &c. Attention is called to the blood-corpuscles, or to corpuscles which, for convenience, are called creeping corpuscles, and several figures given. The peculiarities of these bodies are regarded as of considerable importance, and, coupled with a remark in Dr. Beale's contribution to the Transactions of the Royal Society, read May 21st, 1863, in reference to the movement of all forms of living matter.

A figure is given of the head of the larva, with the pharyngeal portion of the digestive tract exerted, which was kept alive for many days; also of the beautiful buccal plexus regarded as nervous, though not traced from its source. Attention is directed to the difference in the condition of the larva when this portion is exerted by compression, causing death.

The difficulties attending this double method of delineation arising from muscular contraction, from the movements of the dorsal vessel, and the digestive tube, and from the thickness of the tissues within and beyond the true focus, rendered almost hopeless the efforts to attain exactness between the drawings and the photographs, or the rendering by sunlight alone of the minutest points, especially with high powers; still the photographs are associated to give a truthfulness to the figures by hand.

The terminations of some nerves in the blood-red larva of another gnat, showing the distinct flabelliform arrangement, are also briefly alluded to, with figures to sustain the views advanced.